AMENDMENT TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or less characters; and 2. added matter is shown by underlining.

1.-17. (Cancelled).

18. (Currently Amended) A method of coating a substrate, the method comprising:

reacting a reactant stream from a reactant inlet within a flow by directing a light beam at the reactant stream that drives a chemical reaction to produce within the flow a product stream comprising particles downstream from the light beam, wherein the reactant stream comprises a metal or metalloid precursor, wherein the particles are produced by the reaction, wherein the flow passes through the light beam, which does not intersect with the substrate, and wherein the reaction is driven by energy from the light beam;

directing the flow of the product stream to a substrate; and

moving the substrate relative to the flow of the product stream to coat the substrate with a particle coating comprising fused particles having identifiable primary particles.

19. (Cancelled)

20. (Previously Presented) The method of claim 18 wherein the light beam is generated by a laser.

21. (Original) The method of claim 18 further comprising pumping on the reaction chamber to maintain flow through the reaction chamber.

22. (Previously Presented) The method of claim 18 wherein the reactant stream is elongated in a direction along the propagation of the light beam.

23. (Original) The method of claim 18 wherein the substrate is mounted on a stage that moves relative to a product stream.

24. (Original) The method of claim 23 wherein the reactant stream is elongated in a direction along the propagation of the radiation beam to produce a line of product particles that are simultaneously deposited on the substrate and wherein relative movement of the stage sweeps the line across the substrate.

25. (Original) The method of claim 23 further comprising moving the substrate from the path of the reactant stream and placing another substrate in the path of the product stream.

26. (Original) The method of claim 18 wherein the reactant stream is elongated and wherein a line of light propagates to intersect the elongated reactant stream.

27. (Currently Amended) A method of coating a substrate, the method comprising:

reacting a reactant stream from a reactant inlet within a flow by directing a light beam at the reactant stream that drives a chemical reaction to produce within the flow a product stream comprising particles downstream from the light beam, wherein the reactant

stream comprises a metal or metalloid precursor, wherein the particles are produced by the reaction, wherein the flow passes through the light beam, which does not intersect with the substrate, and wherein the reaction is driven by energy from the light beam;

directing the flow of the product stream to a substrate; and

moving the substrate relative to the flow of the product stream to coat the substrate with a particle coating having identifiable primary particles, wherein the reactant inlet moves relative to the substrate such that motion of the reactant inlet sweeps the product particles across the substrate.

28. (Original) The method of claim 18 wherein the product stream passes through a conduit prior to reaching the substrate and wherein the conduit moves relative to the substrate with motion of the conduit sweeping the product particles across the substrate.

29. (Original) The method of claim 18 wherein an external field is applied to direct the product stream.

30. (Currently Amended) A method of forming a [[glass]] coating comprising:

reacting a reactant stream from a reactant inlet within a flow by directing a light beam at the reactant stream that drives a chemical reaction to produce within the flow a product stream comprising particles downstream from the light beam, wherein the reactant stream comprises a metal or metalloid precursor, wherein the particles are produced by the reaction, wherein the flow passes through the light beam, which does not intersect with the substrate, and wherein the reaction is driven by energy from the light beam;

directing the flow of the product stream to a substrate;

moving the substrate relative to the flow of the product stream to coat the substrate, wherein the reactant inlet moves relative to the substrate such that motion of the reactant inlet sweeps the product particles across the substrate; and

heating a particle coating at a temperature and for a period of time sufficient to fuse the particles into a dense coating material ~~glass and where the particle coating is formed according to the method of claim 18~~.

31. (Currently Amended) A method of forming an optical component on a substrate surface, the method comprising removing a portion of a [[glass]] coating formed according to the method of claim 30, wherein the coating is a glass, to form the optical component.

32. (Original) The method of claim 31 wherein the removing of a portion of the glass coating is performed by photolithography.

33. (Previously Presented) A method of coating a substrate comprising:

generating, within a flow, a reactant stream with a cross section perpendicular to the propagation direction of the reactant stream, the cross section being characterized by a major axis and a minor axis, the major axis being at least a factor of two greater than the minor axis;

reacting the reactant stream to form a product stream of particles within the flow;

directing the flow of the product stream of particles to a substrate to deposit simultaneously a coating stripe on the substrate characterized by the major and minor axis of the flow; and,

moving the substrate relative to the flow of the product stream to coat the substrate with a coating comprising fused particles.

34. (Original) The method of claim 33 wherein at least about 25 grams per hour are deposited onto the substrate.

35. (Original) The method of claim 33 wherein the reaction is driven by a light beam.

36. (Original) The method of claim 33 wherein the major axis is at least a factor of ten greater than the minor axis.

37. (Original) The method of claim 33 wherein the flow of the stream of particles is maintained by momentum of the product stream.

38. (Original) The method of claim 33 wherein the flow of the stream of particles is maintained by pumping out a chamber and wherein the substrate is located within the chamber.

39-61. (Canceled)

62. (Previously Presented) The method of claim 27 wherein the light beam is generated by a laser.

63. (Previously Presented) The method of claim 27 further comprising pumping on the reaction chamber to maintain flow through the reaction chamber.

64. (Previously Presented) The method of claim 27 wherein the reactant stream is elongated in a direction along the propagation of the light beam.

65. (Previously Presented) The method of claim 27 wherein the substrate is mounted on a stage with a thermal control feature so that the stage can be heated.

66. (Previously Presented) The method of claim 27 wherein the substrate is mounted on a stage with a thermal control feature so that the stage can be cooled.

67. (Currently Amended) A method of coating a substrate, the method comprising:

reacting a reactant stream within a flow by directing a light beam at the reactant stream that drives a chemical reaction to produce within the flow a product stream comprising particles downstream from the light beam, wherein the reactant stream comprises a metal or metalloid precursor, wherein the particles are produced by the reaction, wherein the flow passes through the light beam, which does not intersect with the substrate and wherein the reaction is driven by energy from the light beam;

directing the flow of the product stream to a substrate;

moving the substrate relative to the flow of the product stream to coat the substrate in a controlled way over a selected portion of the substrate less than the entire substrate surface; and

heating the coated substrate to form a patterned dense coating material <u>after completion of coating deposition</u>.

68. (Previously Presented) The method of claim 67 wherein the light beam is generated by a laser.

69. (Previously Presented) The method of claim 67 further comprising pumping on the reaction chamber to maintain flow through the reaction chamber.

70. (Previously Presented) The method of claim 67 wherein the reactant stream is elongated in a direction along the propagation of the light beam.

71. (Previously Presented) A method of coating a substrate comprising:

generating a first product stream within a flow produced by a chemical reaction of a first reactant stream wherein the chemical reaction is driven by a light beam;

depositing the first product stream on a moving substrate to form a first coating;

generating a second product stream within a flow produced by a chemical reaction of a second reactant stream wherein the chemical reaction is driven by a light beam;

depositing the second product stream on the moving substrate to form a second coating; and

heating the substrate to form a first dense coating and a second dense coating.

72. (Previously Presented) The method of claim 71 wherein the heating of the substrate comprises a first heating of the substrate after depositing the first coating and before depositing the second coating to form the first dense coating and a second heating of the substrate after forming the second coating to form the second dense coating.

73. (Previously Presented) The method of claim 71 wherein the heating of the substrate is performed after deposition of the first coating and the second coating so that the first dense coating is not formed prior to the deposition of the second coating.